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Capacity issues challenge the freight industry

Ocean and air cargo have too much capacity, according Rosalyn Wilson, senior business analyst with Delcan Corporation. Wilson was the keynote speaker at the 17th Annual Freight and Logistics Symposium in December.

Rosalyn Wilson

Throughout the recent recession, ocean carriers continued to order and float new megaships. The resulting overcapacity and low pricing raise solvency concerns and uncertainty for shippers, Wilson said.

Air cargo overcapacity is due in part from airline passengers choosing to carry on their luggage rather than pay to have it checked. As a result, the cargo holds of passenger planes have extra space for premium air cargo—which is estimated to have about a 65 percent profit margin for passenger airlines, she noted.

Download the proceedings of the 2013 Freight and Logistics Symposium (466 KB PDF)

On the flip side, trucking, which is the largest component of the supply chain industry, has operated at 95 to 97 percent capacity for the past three years. Wilson believes this capacity crunch will create major problems for the industry by 2016 and 2017.

If and when this lack of truck capacity reaches crisis levels, intermodal rail likely stands to benefit most, Wilson predicted. Throughout the recession, railroads continued to invest in their infrastructure and equipment and are now perfectly positioned to fill any gaps in trucking capacity, she said.

Other speakers also noted capacity issues—whether a shortage of drivers or an abundance of data. Chip Smith, CEO of Bay and Bay Transportation, said a major issue is the ability to find and keep enough qualified drivers. Some of the shortage stems from changes in federal hours-of-service rules, which limit the average workweek for truck drivers to 70 hours.

Jason Craig (right) with panelists

Jason Craig, government affairs manager with C.H. Robinson, said a particular challenge his firm faces is what to do with the massive amount of data available in the supply chain—and how to get more out of it. Cargill's Randy Brown, vice president of transportation and logistics, said Cargill is rolling out an improved global analytics capability to make use of its data. "Data drives our decision making," he said. "The ability to analyze all of the available information to make decisions requires a deeper level of analytics."

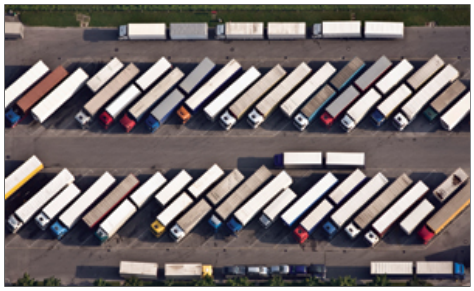
Other symposium topics included a U of M study of manufacturers' perceptions of the transportation system, the growth of third-party logistics providers, and the need for public awareness and support of freight's role in economic growth.

The symposium is sponsored by the Center for Transportation Studies in cooperation with the Minnesota Department of Transportation, Minnesota Freight Advisory Committee, Council of Supply Chain Management Professionals Twin Cities Roundtable, Metropolitan Council, and the Transportation Club.

Related resources:

- Download the proceedings and selected event presentation slides

Automated system helps truckers find safe places to park



Amid increasing freight traffic on U.S. roadways, commercial truck drivers often struggle to find safe and legal places to park. Drivers may be forced to pull over in unsafe locations—such as on freeway ramps or shoulders—or become dangerously fatigued if they continue driving. Drivers may also risk violating federal hours-of-service rules, which require them to rest after 11 hours of driving.

But a project team including the Minnesota Department of Transportation (MnDOT), the University of Minnesota, and the American Transportation Research Institute (ATRI) is developing a system that can identify available truck parking spaces and communicate the information to drivers—helping them determine when and where to stop.

"The potential to improve safety by reducing driver fatigue and improving a driver's ability to park safely is one of the system's greatest benefits," said John Tompkins, MnDOT freight project manager and one of the project's leaders. In addition, the system could lead to better trip and operations management by drivers and carriers and help MnDOT and truck stop owners manage their facilities more effectively.

The system uses a network of digital cameras suspended above a parking area to monitor space availability. Image processing software developed by researchers at the University of Minnesota Department of Computer Science and Engineering (CS&E) analyzes the video frames and determines the number of occupied spaces.

The project team is installing the system at three MnDOT rest areas and one private truck stop on Interstate 94 northwest of the Twin Cities as part of a demonstration project funded by MnDOT and the Federal Highway Administration. The I-94 corridor, which has large volume of truck traffic, is critical to the movement of goods in Minnesota and is an important connection between trade centers on the West Coast and in the Midwest.

The Elm Creek Rest Area, two miles north of Interstate 494 on I-94, was the first implementation site for the system. U of M researchers, led by CS&E professor Nikolaos Papanikolopoulos, installed the system at the rest area in late 2012. They used the installation to calibrate, test, and refine the system. Project manager Ted Morris said counts have been consistently accurate to within one parking space.

The system also has been deployed at the Big Spunk Lake Rest Area just west of Avon, Minnesota. An installation at the Enfield Rest Area near St. Cloud is currently in progress, and planning is under way for the final site, a private truck stop.

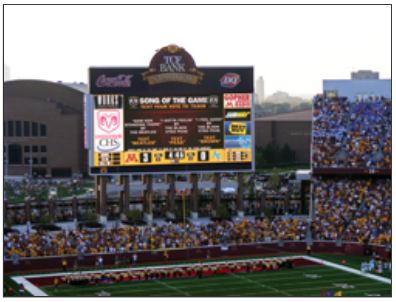
Next, the team plans to install variable message signs along I-94 this spring to communicate parking information to truck drivers. To decide sign placement, the team will consider the results of a truck driver survey completed by ATRI, which showed that drivers would find the signs most helpful when located either a few miles or about 20 miles before a given rest area. An in-cab messaging system and a website are also in the works.

Overall results of the demonstration project will help the team determine use of the technology in other corridors throughout the nation.

Related resources:

- Demonstration project web page

Pilot study seeks manufacturers' perspectives on transportation system



The scoreboard at TCF Bank Stadium was one of the delicate products shipped from west-central Minnesota. (Photo courtesy Daktronics)

It's no secret that manufacturing plays a key role in driving economic growth, or that transportation is essential for the success of any manufacturing operation. Though the relationships among manufacturing, transportation, and economic growth have been studied on a large scale, there is often little dialogue between transportation organizations and the manufacturers themselves.

A recently completed pilot study conducted jointly by the Minnesota Department of Transportation (MnDOT), the University of Minnesota Humphrey School of Public Affairs, and University of Minnesota Extension aims to address this communication gap.

"We wanted to talk directly with a diverse group of manufacturers and carriers in west-central Minnesota in order to learn about their specific challenges, priorities, and needs," MnDOT market research director Donna Koren said.

The pilot project focused on 12 counties in west-central Minnesota that make up MnDOT District 8. The research team began by identifying key industry clusters within the region. Industry clusters have been shown to be driving economic forces because they sell outside the local, state, and national market—bringing money into the region and creating jobs in other economically dependent industries such as retail and food service. Ultimately, researchers contacted more than 172 regional businesses for participation in this project and completed 75 in-person interviews with manufacturers, shippers, and carriers.

During the interviews, participants were encouraged to focus their comments on high-value, low-cost improvements that MnDOT can address in the short term without over-promising projects that currently cannot be funded. The result of these interviews was a wealth of new information and important findings in the areas of transportation infrastructure, operations and maintenance, communication, and policy.

For example, findings included the need for smooth pavements and wide shoulders, the value of advance-warning lights at intersections with traffic signals, the importance of highway safety, the challenges of maneuvering oversized vehicles through roundabouts, and manufacturers' desire for improved communications regarding such things as road conditions and detours.

The research team will compile the findings from the pilot program into a final report due out soon. In the meantime, MnDOT is working to address a number of the challenges and suggestions uncovered through the pilot program. Agency officials also will explore using the best practices developed in the pilot project to carry this program to other MnDOT districts and support economic vitality throughout the state.

Related resources:

- Research project page
- Manufacturers' Perspectives on the Transportation System: A Pilot Study in MnDOT District 8 (CTS research seminar, October 10, 2013)
- Uncovering manufacturers' perspectives on the transportation system (*CTS Catalyst*, December 2013)

New U of M program to explore transportation policy and economic competitiveness

A new five-year program at the University of Minnesota will seek to further define and promote the relationship between transportation and economic development in Minnesota and the region. The the Transportation Policy and Economic Competitiveness (TPEC) Program, managed by the State and Local Policy Program (SLPP) at the Humphrey School of Public Affairs, was established in response to a directive from the Minnesota Legislature in its 2013 session. The program is funded by the Minnesota Department of Transportation (MnDOT).

"Minnesota needs this research to better understand how transportation contributes to economic competitiveness," said Rep. Frank Hornstein, chair of the Minnesota House Transportation Finance Committee. "We look forward to this research helping us make the best transportation decisions for the state."

Rigorous academic research will form the backbone of the program, according to Lee Munnich, director of SLPP and TPEC. Research will address three main areas:

- Innovative transportation finance options. Various initiatives, including the Itasca Project's Transportation Return on Investment Study and Governor Dayton's recent Transportation Finance Advisory Committee, have noted that current revenues will not be adequate to maximize transportation's benefits to Minnesota's economy. Research in this area will focus on identifying and developing sustainable revenue streams to meet capital and maintenance costs. Topics will include mileage-based user fees, public-private partnerships, MnPASS corridors, and value capture.
- Industry clusters. Industry clusters are geographically concentrated groups of interconnected companies, universities, and related institutions. Dynamic and innovative industry clusters are critical for the success of a regional economy, but exactly how freight transportation ensures the success of these clusters and enhances the competitiveness of the region is not well understood. This research will aim to improve knowledge of those industries.
- Transportation technologies. Information technology is dramatically changing the management and operation of transportation systems. Research will investigate the impacts of and opportunities from intelligent transportation systems, robotics, self-driving cars, energy technologies, safety technologies, congestion management systems, and intermodal applications.

Research results are intended to help MnDOT and its partners engage stakeholders, analyze investments, and approach programming. In addition to research, the program will undertake other activities producing more rapid results. One task will be compiling data for a Minnesota Transportation Finance Database and updating it each year. Another product will be a white paper about the potential impacts of self-driving vehicle technologies on Minnesota's economy, which likely will be available in the marketplace within the next 10 years, Munnich said.

The program will also provide opportunities for students to learn and gain experience. In addition, it will disseminate research results and engage practitioners, other researchers, and the public.

Related resources:

- Transportation Policy and Economic Competitiveness Program
- New U of M program to explore transportation policy and economic competitiveness (*CTS Catalyst*, February 2014)

New pilot program to help suppliers reduce greenhouse gas emissions

Recognizing that the carbon footprint of most companies rests in its supply chain, the NorthStar Initiative for Sustainable Enterprise at the University of Minnesota has teamed up with CDP (formerly the Carbon Disclosure Project) to help global suppliers reduce their carbon emissions.

The NorthStar Initiative for Sustainable Enterprise (NiSE), a program of the U of M Institute on the Environment, works with private-sector partners to identify and overcome systemic obstacles to achieving a truly sustainable economy.


CDP Global Supply Chain Report 2014

CDP is a non-governmental organization that provides a global environmental disclosure system to encourage companies around the world to reduce carbon emissions. For the past few years, CDP's supply chain program has seen an increase in the number of global supplier companies reporting their carbon emissions, with over 2,800 companies reporting in 2013.

But the number of actions suppliers have taken to mitigate emissions has remained low relative to the number of activities taken by multinational purchasing companies (e.g., retailers and end-product manufacturers) that are members of CDP's supply chain program.

In response, CDP has developed an initiative known as Action Exchange (AEX), which provides suppliers with information they can use to save money and reduce their greenhouse gas emissions.

Bank of America, L'Oreal, PepsiCo, Philips, Vodafone, and Walmart with more than 100 of their suppliers are participating in the pilot program. Using CDP's massive multiyear dataset on corporate carbon emissions, NiSE is recommending which suppliers are likely to provide the greatest carbon returns by participating in the program.

"Many companies have carbon targets they are trying to reach, but they are often still focusing their efforts on energy efficiency projects," NiSE researcher Jennifer Schmitt said. "While these are admirable, they are not the highest yielding activities from a carbon reduction perspective. Companies need to give more consideration to other actions such as changes in product design, which can yield significantly greater carbon reductions."

The launch of the pilot program coincides with the release of the *CDP Global Supply Chain Report 2014*, which includes a commentary on NiSE's role in the pilot project.

Related Resources:

- NorthStar Initiative for Sustainable Enterprise
- U of M Institute on the Environment
- CDP (Carbon Disclosure Project)
- Why must supply chains collaborate to combat climate risk? (*CDP Global Supply Chain Report 2014*)
- New pilot program takes aim at supply chain carbon (*UMNews*, January 2014)

MAFC annual meeting, Apr. 22–25

The Mid-America Freight Coalition (MAFC) annual meeting is being held in conjunction with the NAFTANEXT Summit, "Energizing Sustainable Trade Corridors Across North America," April 22-25, 2014, at the historic Palmer House Hotel in Chicago, Illinois. MAFC is partnering with the Coalition for America's Gateways and Trade Corridors (CAGTC) and NAFTANEXT to expand its meeting and address the growing focus on energy and its importance to freight transportation. The conference will include both MAFC-specific and joint sessions that address a wide range of freight-related issues.

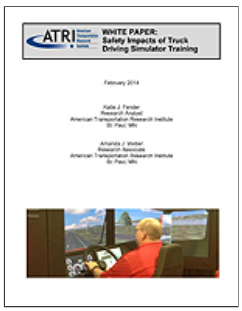
FHWA 'Talking Freight' seminars

"Talking Freight" online seminars from the Federal Highway Administration (FHWA) provide transportation practitioners a way to broaden their freight knowledge base and develop new job skills. Seminars typically are held from 1:00 p.m. – 2:30 p.m. (Eastern) on the third Wednesday of each month. Please check the Talking Freight Seminars website for the latest information. Recorded sessions of previous seminars are available from the Talking Freight Archives.

- **March 19, 2014**
  Innovative Low-Cost Freight Transportation Collaborations—Public and Private Partnership Opportunities, 1:00–2:30 p.m. (Eastern)

More news and information

The American Transportation Research Institute (ATRI) in February published a research white paper examining safety impacts of simulator training for truck drivers. The report, *Safety Impacts of Truck Driver Simulator Training*, investigated the effectiveness of using customized truck driving simulators to target specific driving behaviors that have been associated with increased crash risk. The initial results at six months post-training suggested that drivers who received the targeted simulator training had fewer safety incidents over time, but those effects dissipated at the 12-month mark. Truck driving simulators provide carriers with the ability to offer a wide variety of training exercises to drivers from the safety and convenience of a classroom. By focusing training efforts on correcting behaviors that have a known correlation to crash risk, carriers can take a proactive step towards preventing future crashes. A copy of this report is available from ATRI.



Recently published freight-related research from the Transportation Research Board (TRB):

- *Trucks, Buses, Motorcycles, and Mopeds 2013* (February 2014)
- *Critical Issues in Transportation: 2013* (February 2014)
- *Freight Operations 2013* (January 2014)

- *Freight Modeling and Logistics 2013* (January 2014)
- *Integrating Freight Considerations into the Highway Capacity Planning Process: Practitioner's Guide* (December 2013)
- *Risk-Based Adaptation Frameworks for Climate Change Planning in the Transportation Sector* (December 2013)
- *Carbon Footprint of Supply Chains: A Scoping Study* (November 2013)

More upcoming events:

- **June 1–5**
  PIANC World Congress
  San Francisco, California
- **September 17-19**
  National Waterways Conference 2014 Annual Meeting
  Margaritaville Resort Bossier City, LA
- **September 21–24**
  Rail~Volution
  Minneapolis/St. Paul, Minnesota

Comments?

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